UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,265	10/31/2003	Allan M. Hansen	BO1 - 0227US	2046

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ART UNIT	PAPER NUMBER
3623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/699,265	HANSEN ET AL.
Office Action Summary	Examiner	Art Unit	
	DORON D. FIELDS	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>31 October 2003</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-30</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-30</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>26 February 2004</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11 March 2004</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____

Detailed Action

Status of Claims

1.   This action is in reply to the application filed on 31 October 2003.

2.   Claims 1-30 are currently pending and have been examined.

Information Disclosure Statement

The Information Disclosure Statement filed on 11 March 2004 has been considered. An initialed copy of the Form 1449 is enclosed herewith.

Drawings

3.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

- Fig 19, reference number 1910 and 1940

- Fig 20, reference number 2010

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.   Claim 20 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites "wherein assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression includes assessing an applicability expression, assessing an engineering requirement, and assessing a manufacturing availability expression". As written, at least one (*i.e.*, one or more) of applicability expression, an engineering requirement, and a manufacturing availability expression must be assessed (assume assessing an engineering requirement), yet each assessment (engineering requirement in this example) includes assessing an applicability expression, assessing an engineering requirement, and assessing a manufacturing availability expression. Does assessing an engineering requirement include assessing an applicability expression, assessing an engineering requirement, and assessing a manufacturing availability expression? Does assessing an applicability expression include assessing an applicability expression, assessing an engineering requirement, and assessing a manufacturing availability expression?

For the purpose of examination, examiner assumes that the assessing step includes assessing an applicability expression, an engineering requirement, and a manufacturing availability expression.

Claim Rejections - 35 USC § 101

6.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7.   Claims 1-30 are rejected under 35 U.S.C. 101 based on Supreme Court precedent, and recent Federal Circuit decisions, the Office's guidance to examiners is that a § 101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. Diamond v. Diehr, 450 U.S. 175, 184 (1981); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S. 63, 70 (1972); Cochrane v. Deener, 94 U.S. 780,787-88 (1876).

8.   An example of a method claim that would <u>not</u> qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a § 101 statutory process, the claim should positively recite the other statutory class (the thing or product) to which it is tied, for example by identifying the

apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

Here, applicant's method steps, fail the first prong of the new Federal Circuit decision since they are not tied to another statutory class and can be preformed without the use of a particular apparatus. Thus, claims 1-30 are non-statutory since they may be performed within the human mind.

Claim Rejections - 35 USC § 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10.   Claims 1-3, 6-13, 19 and 20 rejected under 35 U.S.C. 102(b) as being anticipated by Gupta et al. (US-PAT-NO US 6,405,308 B1).

Claim 1:

Gupta, as shown, discloses the following limitations:

A method for creating a product definition, comprising:

- *instancing one or more usage-based product definition inputs* (see at least abstract: "The invention provides the ability to interactively select and configure a product")*;*

- *assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression associated with at least some of the usage-based product definition inputs* (see at least abstract: "The invention provides the ability to interactively select and configure a product among a set of related products based on availability and compatibility of features and options."); *and*

- *generating the product definition based on at least some of the usage-based product definition inputs, applicability expressions, engineering requirements, and manufacturing availabilities* (see at least abstract: "The invention provides the ability to interactively select and configure a product among a set of related products based on availability and compatibility of features and options.").

Claim 2:

Gupta discloses all the limitations of claim 1 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein instancing one or more usage-based product definition inputs includes instancing a part* (see at least column 1, lines 19-22: "Before a system can be built the components of the system must be identified. To configure a system, a user must select the parts to include in the system.").

Claim 3:

Gupta discloses all the limitations of claim 1 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein instancing one or more usage-based product definition inputs includes instancing a requirement* (see at least column 2, lines 2-5: " The invention provides the ability to interactively select and configure a product among a set of related products based on availability and compatibility of features and options.").

Claim 6:

Gupta discloses all the limitations of claim 1 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein instancing one or more usage-based product definition inputs includes instancing a predetermined component based on a product class configuration rule* (see at least Fig 4 and column 2, lines 9-13: "Parts in a product definition are related or classified as: included (parts that are included by default), required choices (a choice among a group of parts that must be made to achieve a valid configuration), optional (parts that can be optionally included in the configuration).").

Claim 7:

Gupta discloses all the limitations of claim 6 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein the instancing a predetermined component based on a product class configuration rule includes instancing a predetermined component based on a mandatory configuration rule* (see at

least Fig 4 and column 2, lines 9-13: "Parts in a product definition are related or classified as: included (parts that are included by default), required choices (a choice among a group of parts that must be made to achieve a valid configuration), optional (parts that can be optionally included in the configuration).".

Claim 8:

Gupta discloses all the limitations of claim 6 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein the instancing a predetermined component based on a product class configuration rule includes instancing a predetermined component based on a configuration default rule* (see at least Fig 4 and column 2, lines 9-13: "Parts in a product definition are related or classified as: included (parts that are included by default), required choices (a choice among a group of parts that must be made to achieve a valid configuration), optional (parts that can be optionally included in the configuration).").

Claim 9:

Gupta discloses all the limitations of claim 1 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression includes assessing an option expression* (see at least Fig 4 and column 2, lines 9-13: "Parts in a product definition are related or classified as: included (parts that are included by default), required choices (a choice among a group of parts that must be made to achieve a valid configuration), optional (parts that can be optionally included in the configuration).").

Claim 10:

Gupta discloses all the limitations of claim 9 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein assessing an option expression includes assessing at least one of a default option expression, an available option expression, and a not available option expression* (see at least

Fig 4 and column 2, lines 9-13: "Parts in a product definition are related or classified as: included (parts that are included by default), required choices (a choice among a group of parts that must be made to achieve a valid configuration), optional (parts that can be optionally included in the configuration).").

Claim 11:

Gupta discloses all the limitations of claim 9 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein assessing an option expression includes assessing an option from an option category associated to a product* (see at least Fig 4 and column 2, lines 9-13: "Parts in a product definition are related or classified as: included (parts that are included by default), required choices (a choice among a group of parts that must be made to achieve a valid configuration), optional (parts that can be optionally included in the configuration).").

Claim 12:

Gupta discloses all the limitations of claim 9 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein assessing an option expression includes assessing at least one of a mandatory option or a mutually exclusive option* (see at least Fig 4 and column 2, lines 9-13: "Parts in a product definition are related or classified as: included (parts that are included by default), required choices (a choice among a group of parts that must be made to achieve a valid configuration), optional (parts that can be optionally included in the configuration).").

Claim 13:

Gupta discloses all the limitations of claim 1 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression includes assessing a configuration rule, the configuration rule being adapted to at least one of validate a configuration specification and populate a*

configuration specification (see at least abstract: "A configuration system validates a configuration using the system definition, the current state of the configuration and user input.").

Claim 19:

Gupta discloses all the limitations of claim 1 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *further comprising defining a sub-component configuration definition* (see at least Fig 4 and abstract: "To create an electronic representation of the product information to achieve the above goal, the invention provides a framework for defining a systems by defining the components of the system using elements contained in a parts catalog and defining relationships between the components of a system.").

Claim 20:

Gupta discloses all the limitations of claim 1 as shown above. Furthermore, Gupta, as shown, discloses the following limitations:

- *wherein assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression includes assessing an applicability expression* (see at least abstract: "The invention provides the ability to interactively select and configure a product among a set of related products based on availability and compatibility of features and options."), *assessing an engineering requirement* (see at least column 2, lines 24-27: "Preferably, the part relationships are: included, excluded, removed, and requires choice. An included part is included automatically. A part is excluded from the configuration when its inclusion would result in an invalid configuration."), *and assessing a manufacturing availability expression* (see at least abstract: "The invention provides the ability to interactively select and configure a product among a set of related products based on availability and compatibility of features and options.").

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12.   Claims 4, 5, 14-18, and 21-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta.

Claim 4:

Gupta discloses all the limitations of claim 1 as shown above.

Gupta does not disclose the following limitations:

- *wherein instancing one or more usage-based product definition inputs includes transforming a coordinate system of a part from a part-centered coordinate system to a product-centered coordinate system.*

Official Notice is taken that it is old and well known in the design arts (*e.g.*, AutoCAD) that a coordinate system of a designed part is converted to the coordinate system of a designed system/product when the part is included in a product or system.

It would have been obvious to one or ordinary skill in the art at the time of the invention to introduce coordinate transformation when configuring a system from parts, as done by Gupta, in order to simplify the design and presentation of a part when presented as part of a product.

Claim 5.

Gupta discloses all the limitations of claim 1 as shown above.

Gupta does not disclose the following limitations:

- *wherein instancing one or more usage-based product definition inputs includes instancing a sub-component having a first configuration, and instancing the sub-component a second time having a second.*

Official Notice is taken that it is old and well known in the design arts (e.g., AuoCAD) that selected similar parts can be configured in numerous ways by specifying product parameters. For example, it is old and well known in aviation that airplane seats are configured differently between coach and first class.

It would have been obvious to one or ordinary skill in the art at the time of the invention to allow for instancing a sub-component, as done by Gupta, multiple times, each with a different configuration, as doing so allows for design choices that meet a customer's needs.

Claims 14 and 15:

Claim 14: Gupta discloses all the limitations of claim 1 as shown above.

Gupta does not disclose the following limitations:

- *wherein instancing one or more usage-based product definition inputs includes instancing a public instance representation of a lower level product by a higher level product.*

Claim 15: Gupta discloses all the limitations of claim 14 as shown above.

Gupta does not disclose the following limitations:

- *wherein instancing a public instance representation of a lower level product by a higher level product includes filtering the public instance representation through the instance of the higher-level product.*

In light of the specification and ordinary skill in the art of object-oriented programming and design (OOP/D), claims 14 and 15 appear to recite the well known operation of inheritance in an object class hierarchy, namely, that object creation ("instancing of a representation") of a child class necessarily creates an instance of the parent class ("instancing of a public class"), and that creating an instance of the child parent necessarily applies the object creation rules of the parent (i.e. the so called "filtering" of the public instance representation).

Official Notice is taken that such OOP/D concepts and operations are old and well known to those of ordinary skill in the art. It would have been obvious to one of ordinary skill in the art to use such operations and concepts as are found in OOP/D in the implementation of Gupta, the parts representations and relationships represented in an object class hierarchy, thus necessarily including the operations as recited, as this would have provided a well known programming methodology to a design methodology which closely matches the inherent nature of object-oriented programming.

Claim 16:

Gupta discloses all the limitations of claim 1 as shown above.

Gupta does not disclose the following limitations:

- *wherein instancing one or more usage-based product definition inputs includes instancing in accordance with a configuration at location option by a customer.*

Official Notice is taken that it is old and well known in the design arts to custom design/configure certain products per a customer's specification. Furthermore, it is old and well known to do so based on the product's intended location. Multiple products are designed to meet a customer's spatial needs. For example, it is old and well known in aviation that airplane seats are configured differently between coach and first class.

It would have been obvious to one or ordinary skill in the art at the time of the invention to allow for configuring a product, as done by Gupta, by taking into account a customer's location needs as doing so increases the odds of selling a product and guaranteeing customer satisfaction and repeat business.

Claims 17 and 18:

Claim 17: Gupta discloses all the limitations of claim 1 as shown above.

Gupta does not disclose the following limitations:

- *wherein at least one of instancing one or more usage-based product definition inputs includes instancing in accordance with a unitized manufacturing assembly plan.*

Claim 17: Gupta discloses all the limitations of claim 1 as shown above.

Gupta does not disclose the following limitations:

- *wherein assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression includes assessing in accordance with a unitized manufacturing assembly plan.*

Official notice is taken that it is old and well known in the art of design and manufacturing to select and design a product with accordance with a manufacturing assembly plan. For example, Design for Manufacturability (DFM) and Design for Assembly (DFA) ensure that system design meet feasible manufacturability requirements.

It would have been obvious for one of ordinary skill in the art at the time of the invention to implement DFM and DFA practices with the design and system configuration of Gupta, as doing so ensures that

product design meets feasible manufacturability requirements for each part and/or component in the design.   In addition, implementing DFM and DFA practices has the added benefit of reducing the assembly time and assembly costs.

Claim 21:

Gupta, as shown, discloses the following limitations:

A method for creating an air vehicle definition, comprising:

- *instancing a usage-based [fuselage] definition input* (see at least abstract: "The invention provides the ability to interactively select and configure a product"), *the usage-based fuselage definition input including at least one of a fore body definition input, a mid body definition input, an aft body definition input, a wing definition input, a vertical tail definition input, and a horizontal tail definition input;*

- *instancing a usage-based [propulsion system] definition input* (see at least abstract: "The invention provides the ability to interactively select and configure a product");

- *assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression associated with at least some of the definition inputs* (see at least abstract: "The invention provides the ability to interactively select and configure a product among a set of related products based on availability and compatibility of features and options."); *and*

- *generating the [air vehicle] definition based on at least some of the definition inputs, applicability expressions, engineering requirements, and manufacturing availabilities* (see at least abstract: "The invention provides the ability to interactively select and configure a product among a set of related products based on availability and compatibility of features and options.").

Gupta, does not disclose the following limitations:

- *a usage-based fuselage, ... the usage-based fuselage definition input including at least one of a fore body definition input, a mid body definition input, an aft body definition input, a wing definition input, a vertical tail definition input, and a horizontal tail definition input;*

- *a usage-based propulsion system*

Gupta, as shown teaches selecting and configuring a product based on availability and compatibility of features and options. The recitation of fuselage (and its components) and propulsion systems are intended use and the method steps do not depend on any actual data/inputs/rules used; hence the applicability of the method to an air vehicle definition is not given any patentable weight. Per Gupta, column 5, lines 46-48: "Examples of systems that can be maintained or configured using the invention include automobiles, computers, time clock machines, and shoes." It would have been obvious to one of ordinary skill in the art at the time of the invention to extend the method of Gupta to define airplanes, helicopters, trains, and other tailored products as all are known to have customizable features that depend on a customer's needs and preferences.

The above rational applies to the rejection of claims 22-30, which depend on claim 21.

Claim 22:

Refer to rejection of claim 4 above.

Claim 23:

Refer to rejection of claim 6 above.

Claim 24:

Refer to rejection of claim 7 above.

Claim 25:

Refer to rejection of claim 8 above.

Claim 26:

Refer to rejection of claim 10 above.

Claim 27:

Refer to rejection of claim 13 above.

Claim 28:

Refer to rejection of claim 14 above.

Claim 29:

Refer to rejection of claim 15 above.

Claim 30:

Refer to rejection of claims 17-18 above.

Conclusion

13.　　The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Ali et al. (PGPUB-NO: US 2002/0107948 A1) discloses design of a product and implementation of DFM (Design For Manufacturability) and DFA (Design For Assembly) tools;

- Bowman et al. (PGPUB-NO: US 2005/0049738 A1) discloses tool design and instructions in a dynamic manufacturing environment including instances of the objects based on definition of a functional deliverable of the product and information identifying configuration of the product (e.g. option and line number);

- Lynch et al. (US-PAT-NO: US 5,515,524 A) discloses a method and apparatus for configuring systems including parent-child object classes and inherency;

- Dolby et al. (US-PAT-NO: US 5,617,514 A) discloses a system for generating a complete, legal, and near-optimal configuration for any complex system consisting of multiple components;

- Cram et al. (US-PAT-NO: US 5,963,953 A) discloses a method, and system for product configuration;

- Suzuki (US-PAT-NO: US 6,125,304 A) discloses coordinate data converting method and device.

Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **Doron D. Fields** whose telephone number is **571.270.3107.** The Examiner can normally be reached on Monday-Friday, 9:30am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **BETH VAN DOREN** can be reached at **571.272.6737.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal/pair <http://pair-direct.uspto.gov >. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866.217.9197** (toll-free).

Any response to this action should be mailed to:

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Commissioner of Patents and Trademarks

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or faxed to **571-273-8300.**

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/Doron D Fields/Examiner, Art Unit 3623
25 June 2008

/Beth Van Doren/
Supervisory Patent Examiner, Art Unit 3623